Electronic Form, GIS, and Attribute Table Data Submission Guidelines for Underground Gathering Pipelines

Industrial Commission of North Dakota
Oil and Gas Division

I. Purpose:

The purpose of this document is to assist pipeline owners by providing an explanation of the data and information being collected. This document provides detailed explanations for all data and information submitted on the electronic forms and/or the GIS attribute data.

II. GIS (Geographical Information Systems) Overview:

For many of the submission processes to the NDIC Underground Gathering Pipeline Program, an ESRI shapefile with the GCS (geographic coordinate system) NAD83 will be utilized. Shapefile templates or geodatabase templates will be available for download for all of the submissions that require shapefiles.

III. GIS Data Submission Procedures:

Contact Information:
The contact information will be used by Commission staff in addressing any discrepancies or issues with the submission. The GIS Contact information needs to be a person familiar with the GIS or affidavit submission(s) so any corrections to the submission can be done in a timely/effective manner. The operator contact should be a representative of the company that owns the pipeline.

1. GIS Contact First Name
2. GIS Contact Last Name
3. GIS Contact Number
4. GIS Contact Email
5. Operator Contact First Name
6. Operator Contact Last Name
7. Operator Contact Number
8. Operator Contact Email

Notice to Construct an Underground Gathering Pipeline GIS Data Submission:
See NDAC 43-02-03-29.1(3)(a) The data and information collected on this electronic from satisfies the requirement to notify the Commission 7 days prior of intent to construct a crude oil or produced water underground gathering pipeline.

1. Email GIS Shapefile & Construction Plans (pipelines@nd.gov):
Attribute Fields for Shapefile Template

a. operator –	Name of the operator of the underground gathering pipeline(s). This must be identical to the name on the bond. Special characters are allowed for this field.
b. systemName –	Name of the underground gathering pipeline system.
c. lineName –	Unique underground gathering pipeline name.
d. condate –	Proposed date that construction is scheduled to begin.
e. fluid –	Type of fluid that will be transported in the pipe. Acceptable nomenclature: CRUDE OIL, PRODUCED WATER, PRODUCED GAS (see below definitions for clarification on each fluid type).

f. compositio –	Material of pipe. Accepted nomenclature: (POLY, STEEL, FLEXSTEEL™, FIBERSPAR™, FIBERGLASS, FLEXPIPE, COMPOSITE, CORE LINEPIPE).
g. bury_depth –	The minimum depth of burial from top of pipe to the finished grade (Feet).

Pipeline Integrity Test GIS Data Submission:

See NDAC 43-02-03-29.1(13) The data and information collected on this GIS data submission satisfies the requirement to provide the location and attribute data for integrity testing of crude oil and produced water pipelines with the Commission.

1. Email GIS Shapefile (pipelines@nd.gov):

Attribute Fields for Shapefile Template

a. operator –	Name of the operator of the underground gathering pipeline(s). This must be identical to the name on the bond. Special characters are allowed for this field.
b. systemName –	Name of the underground gathering pipeline system.
c. lineName –	Unique underground gathering pipeline name.
d. test_date –	Date integrity test was started (MM/DD/YYYY)
e. diameter –	Outside diameter of pipe (Inches).
f. linelength –	Length of pipeline tested. (Feet)
g. designpsig –	The pressure which the pipeline composition specifies per the manufacturer's recommendation.
h. minpsig –	The minimum recorded test pressure at the point of highest elevation in pipeline being tested.
i. maxpsig –	The maximum recorded test pressure at the point of the lowest elevation in pipeline being tested.
j. startpsi –	Starting test pressure recorded for hold period.
k. endpsi –	Ending test pressure recorded for hold period.
l. testdur –	The duration in which the pipeline was tested prior to being placed into service. (Hours)
m. result –	Test result. (PASS/FAIL)
n. contractor –	Name of the contractor performing integrity test.

***Complete GIS Data Replacement:**
All submissions for the as-built/abandonment/bonding will need to be a full replace of the data. Please contact pipelines@nd.gov for any questions you may have with any of these steps.

Pipeline Bonding GIS Data Submission:

See NDAC 43-02-03-15(8)(a) The data and information collected on this GIS data submission satisfies the requirement to provide the location and attribute data for the bonding of crude oil and produced water pipelines with the Commission.

1. Email GIS Shapefile (pipelines@nd.gov):

Attribute Fields for Shapefile Template

a. operator –	Name of the operator of the underground gathering pipeline(s). This must be identical to the name on the bond. Special characters allowed.
b. systemName –	Name of the underground gathering pipeline system.
c. lineName –	Unique underground gathering pipeline name.
b. fluid –	Type of fluid that will be transported in the pipe. Acceptable nomenclature: CRUDE OIL, PRODUCED WATER, PRODUCED GAS (see below definitions for clarification on each fluid type).
d. compositio –	Material of pipe. Accepted nomenclature: (POLY, STEEL, FLEXSTEEL™, FIBERSPAR™, FIBERGLASS, FLEXPIPE, COMPOSITE, CORE LINEPIPE).
e. bury_depth –	The minimum depth of burial from top of pipe to the finished grade (Feet).
f. inservdate –	The first date fluid was transported down the pipeline for disposal, storage, or sale purposes after construction (MM/DD/YYYY).
g. remarks –	Optional area for any additional information or clarification.

Pipeline As-Built/Abandonment GIS Data Submission:

See NDAC 43-02-03-29.1(8)(a) for Crude Oil and Produced Water requirements and NDAC 43-02-03-29(1) for Produced Gas requirements. Any of the NDAC 43-02-03-29.1(8) required attribute table fields for Crude Oil and Produced Water that aren't required in NDAC 43-02-03-29 for Produced Gas pipelines can be left as "null" values. The data and information collected on this GIS data submission satisfies the requirement to provide asbuilt/abandonment location and attribute data as well as the affidavit of completion to the Commission.

***Complete GIS Data Replacement:**
All submissions for the as-built/abandonment/bonding will need to be a full replace of the data. Please contact tbhaugen@nd.gov for any questions you may have with any of these steps.

1. Upload GIS Shapefile (compressed):

Attribute Fields for Shapefile Template

a. operator –	Name of the operator of the underground gathering pipeline(s). This must be identical to the name on the bond for produced water and crude oil assets. Special characters allowed
b. systemName –	Name of the underground gathering pipeline system.
c. lineName –	Unique underground gathering pipeline name.

d. status –	Flow status specific to each underground gathering pipeline. Acceptable nomenclature: PROPOSED, ACTIVE, INACTIVE, ABANDONED, REMOVED, COMPLETED (see below definitions for clarification on each status).
e. inservdate –	The first date fluid was transported down the pipeline for disposal, storage, or sale purposes after construction (MM/DD/YYYY).
f. diameter –	Outside diameter of pipe (Inches).
g. wallthick –	The minimum wall thickness of pipe (Inches).
h. compositio –	Material of pipe. Accepted nomenclature: (POLY, STEEL, FLEXSTEEL™, FIBERSPAR™, FIBERGLASS, FLEXPIPE, COMPOSITE, CORE LINEPIPE).
i. iypsi –	Internal yield pressure or the maximum pressure pipe can hold before bursting as specified by manufacturer (PSI – Pounds per Square Inch).
j. maxtemp –	The maximum operating temperature rating of the underground gathering pipeline (Fahrenheit).
k. maxpres –	The maximum allowable operating pressure (MAOP) of the underground gathering pipeline as set by the pipeline operator/owner. MAOP refers to the wall strength of a pressurized cylinder and is defined as the measure of pressure the walls of a pipe may safely hold in normal operation (PSI – Pounds per Square Inch).
l. minyield –	The specified minimum yield strength for the pipe according to its manufactured specifications. Minimum yield is an indication of the minimum stress a pipe may experience that will cause permanent deformation (PSI – Pounds per Square Inch).
m. fluid –	Type of fluid that will be transported in the pipe. Acceptable nomenclature: CRUDE OIL, PRODUCED WATER, PRODUCED GAS, UNKNOWN (see below definitions for clarification on each fluid type).
n. testmethod –	The type of integrity test performed before the underground gathering pipeline was placed into service. Acceptable nomenclature is HYDROSTATIC, PNEUMATIC
o. testpsi –	The pressure to which the underground gathering pipeline was tested prior to being placed into service. This should be the stabilized pressure recorded for the duration of the test (PSI – Pounds per Square Inch).
p. testdur –	The duration in which the underground gathering pipeline was tested prior to being placed into service (Hours).
q. bury_depth –	The minimum depth of burial from top of pipe to the finished grade (Feet).

r. monitoring – Leak detection and monitoring methods that will be utilized after the in-service date. Accepted Nomenclature: SCADA, SCADA COMBINED WITH CPM, FLOW AND PRESSURE MONITORING, VISUAL, SCHEDULED INTEGRITY TESTING (see below definitions for clarification on each monitoring type).

s. accuracy – The accuracy of the geographical information system layer or shapefile (+/-Feet).

t. remarks – Optional area for any additional information or clarification.

Pipeline Repair GIS Data Submission:

See NDAC 43-02-03-29.1(14)(b) The data and information collected on this GIS data submission satisfies the requirement to provide the location and attribute data for the repair of crude oil and produced water pipelines with the Commission.

1. Email GIS Shapefile (pipelines@nd.gov):

Attribute Fields for Shapefile Template

a. operator – Name of the operator of the underground gathering pipeline(s). This must be identical to the name on the bond. Special characters allowed.

b. systemName – Name of the underground gathering pipeline system.

c. lineName – Unique underground gathering pipeline name.

d. repairDate – Date the repair was completed. (MM/DD/YYYY)

e. repair_LEN – Length of pipeline repaired (FEET)

f. reason – Reason the repair was completed (LINE STRIKE – NOT LOCATED, LINE STRIKE – LOCATED, LINE FAILURE – WITH RELEASE, LINE FAILURE – WITHOUT RELEASE, MAINTENANCE, OTHER).

g. fluid – Type of fluid that will be transported in the pipe. Acceptable nomenclature: CRUDE OIL, PRODUCED WATER, PRODUCED GAS, UNKNOWN (see below definitions for clarification on each fluid type).

h. testmethod – The type of integrity test performed before the underground gathering pipeline was placed into service. Acceptable nomenclature is HYDROSTATIC, PNEUMATIC, OTHER. If OTHER explain in remarks.

i. test_dur – The duration in which the underground gathering pipeline was tested prior to being placed into service (Hours).

j. testpsi – The pressure to which the underground gathering pipeline was tested prior to being placed into service. This should be the stabilized pressure recorded for the duration of the test (PSI – Pounds per Square Inch).

k. remarks – Optional area for any additional information or clarification.

- **Definitions:**

The following definitions correspond to the segment status of an underground gathering pipeline.

Active –	Any underground gathering pipeline that is currently operating or transferring fluid (i.e. in-service).
Inactive –	Any underground gathering pipeline that has been removed from service or idled. Inactive status means the pipeline owner intends to reactivate this segment of pipe in the future and it has not been properly abandoned pursuant to rules.
Abandoned –	Any underground gathering pipeline that has been properly abandoned.
Proposed –	Any underground gathering pipeline that is proposed but hasn't been constructed yet.
Removed –	Any underground gathering pipeline segment that has been physically removed from the ground.
Completed –	Any underground gathering pipeline that has been constructed but has not been brought into service.

The following definitions correspond to the composition types for an underground gathering pipeline.

Poly –	Plastic polyethylene pipe. Commonly referred to as HDPE or high-density polyethylene.
Steel –	Carbon Steel pipe.
Flexsteel ™ –	The inner layer is made out of extruded polymer, the middle layer is helically wrapped steel strip, the outer layer is made out of extruded polymer.
Fiberspar ™ –	Thermoplastic layer with glass and/or carbon fibers in an epoxy.
Fiberglass –	Epoxy or vinyl ester with glass fibers.
Flexpipe –	Bimodal high density polyethylene (HDPE) outer layer, a galvanized steel cord inner layer, and a (HDPE) inner layer.
Composite –	Made up of different parts or elements. This type may be used for any composite pipe that isn't already trademarked or described above.
CORE linepipe –	Pipe-in-pipe system that utilizes an outer steel pipe and an inner polymer liner pipe.
Unknown –	This composition type may be used for the legacy or older type underground gathering pipelines that may not have enough information to correctly identify the composition. This should only be used as a last resort when identifying the composition of an underground gathering pipeline.

The following definitions correspond to the fluid types for an underground gathering pipeline.

Crude Oil –	Unrefined petroleum.
Produced Water –	Waste water produced in conjunction with oil and natural gas production.
Produced Gas –	Natural gas produced at a well site.
Unknown –	This fluid type may be used for the older underground gathering pipelines that may not have enough information to

	correctly identify the fluid type. This should only be used for abandoned pipelines.

**Emulsion – The fluid produced from the well, comprised of a mixture of oil, gas, and other products. This may be two phase or three phase. Emulsion pipelines are not required to be submitted to the NDIC Underground Gathering Pipeline Program.*
**Fresh water – Also not required to be submitted.*

****The following definitions correspond to the monitoring types for an underground gathering pipeline.***

SCADA –	Supervisory control and data acquisition (SCADA), is a computer-based system or systems used by personnel in a control room that collects and displays information about a pipeline facility and may have the ability to send commands back to the pipeline facility (e.g. start or stop pumps, control process equipment remotely).
SCADA combined with CPM –	Supervisory control and data acquisition (SCADA) combined with computational pipeline monitoring (CPM), means a software-based monitoring tool that alerts pipeline personnel of a possible pipeline operating anomaly that may be indicative of a fluid release.
Flow and Pressure Monitoring –	Local monitoring of volume and pressure gauges flow at one or multiple points.
Visual –	Any visual inspection of the underground gathering pipeline. Periodic fly-bys, use of infrared cameras or periodic walking of pipeline corridor fall under this category.
Scheduled Integrity Testing –	Performing scheduled integrity tests on the pipe to determine structural integrity.